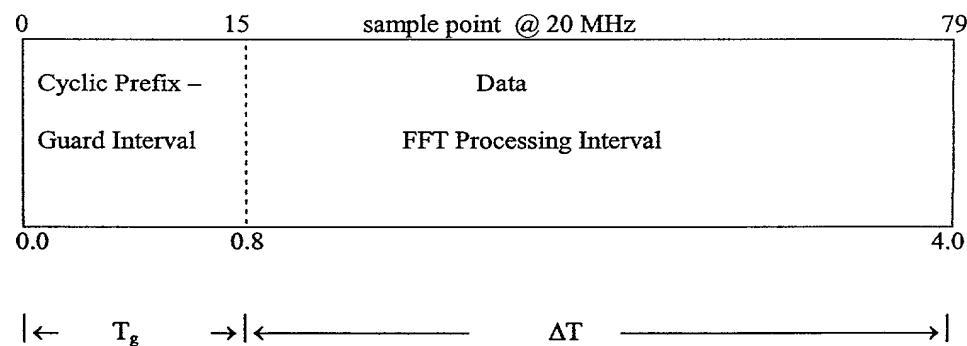
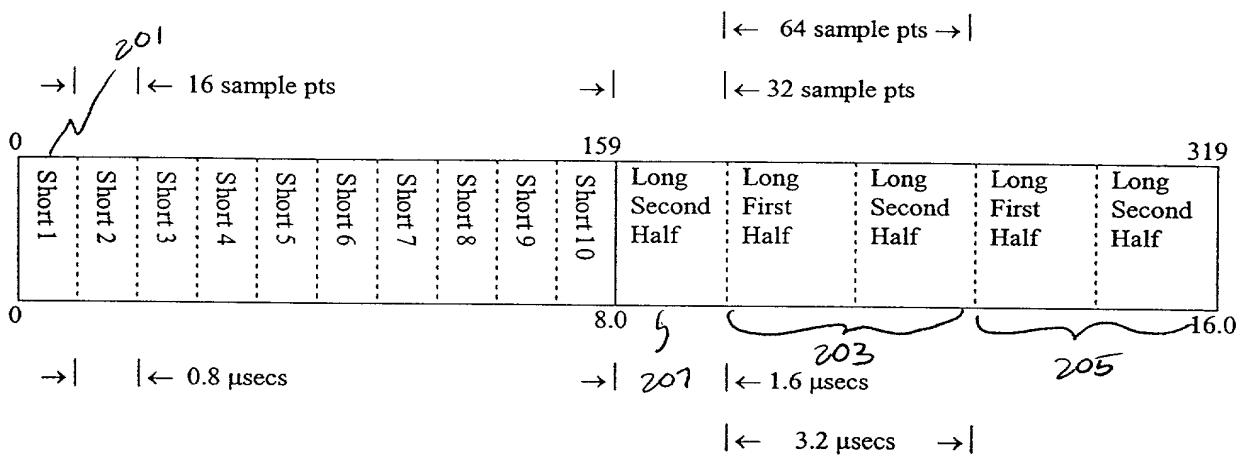


a.) Data and Pilot Sub-Carriers



b.) OFDM Data Symbol Structure

**Fig. 1 OFDM WLAN PHY Layer Data Symbols**



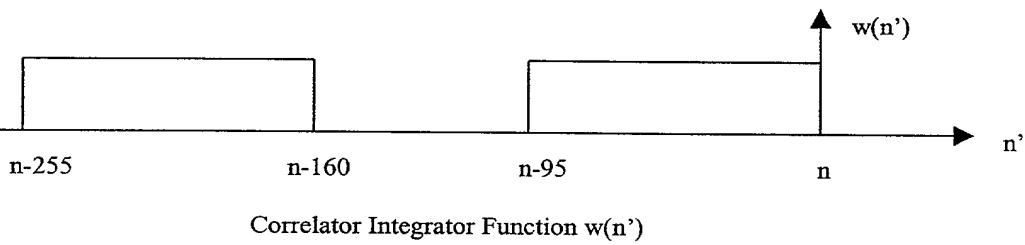
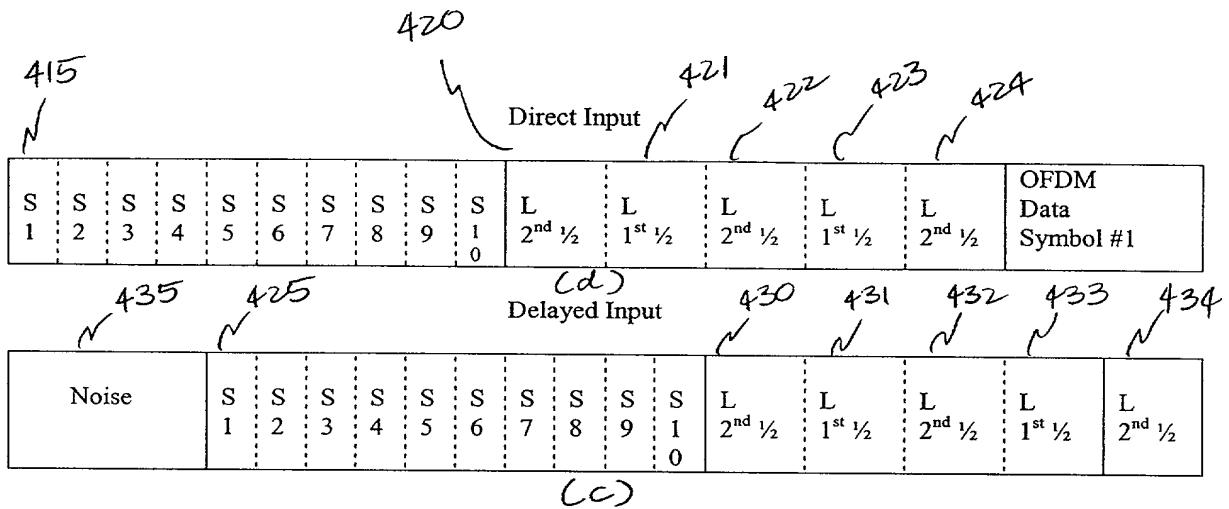
**Fig. 2    OFDM WLAN Preamble Structure  
(20 MHz Sample Rate)**

a.) Short Sync Modulation Values - S<sub>26</sub> to S<sub>26</sub>

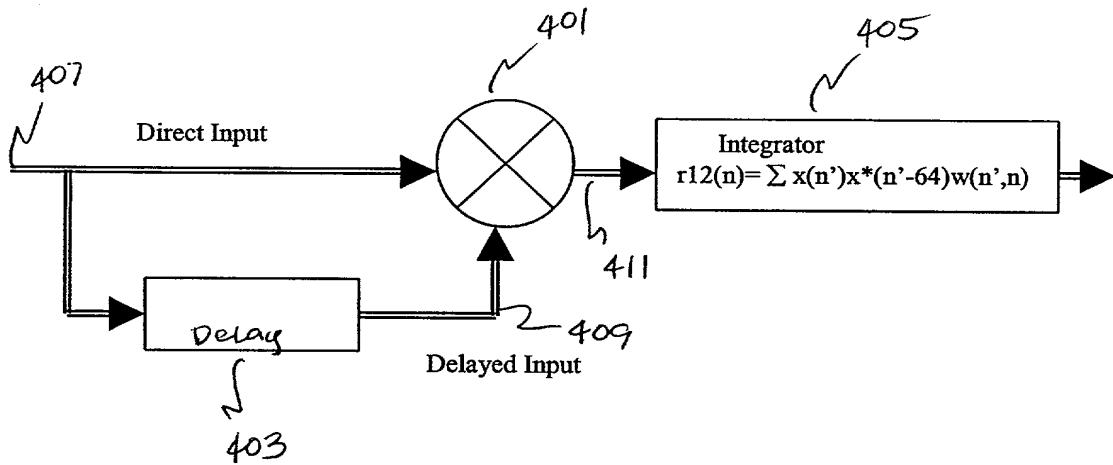
$$\{1, 1, -1, -1, 1, 1, -1, 1, -1, 1, 1, 1, 1, 1, 1, -1, -1, 1, 1, -1, 1, -1, 1, 1, 1, 1, 1, 1, 0, \\1, -1, -1, 1, 1, -1, 1, -1, 1, -1, -1, -1, -1, 1, 1, -1, -1, 1, -1, 1, -1, 1, 1, -1, 1, 1, 1, 1, 1\}$$

#### b.) Long Sync Modulation Values - L<sub>26</sub> to L<sub>26</sub>

**Fig. 3 Short and Long Sync Symbol Modulation Values**

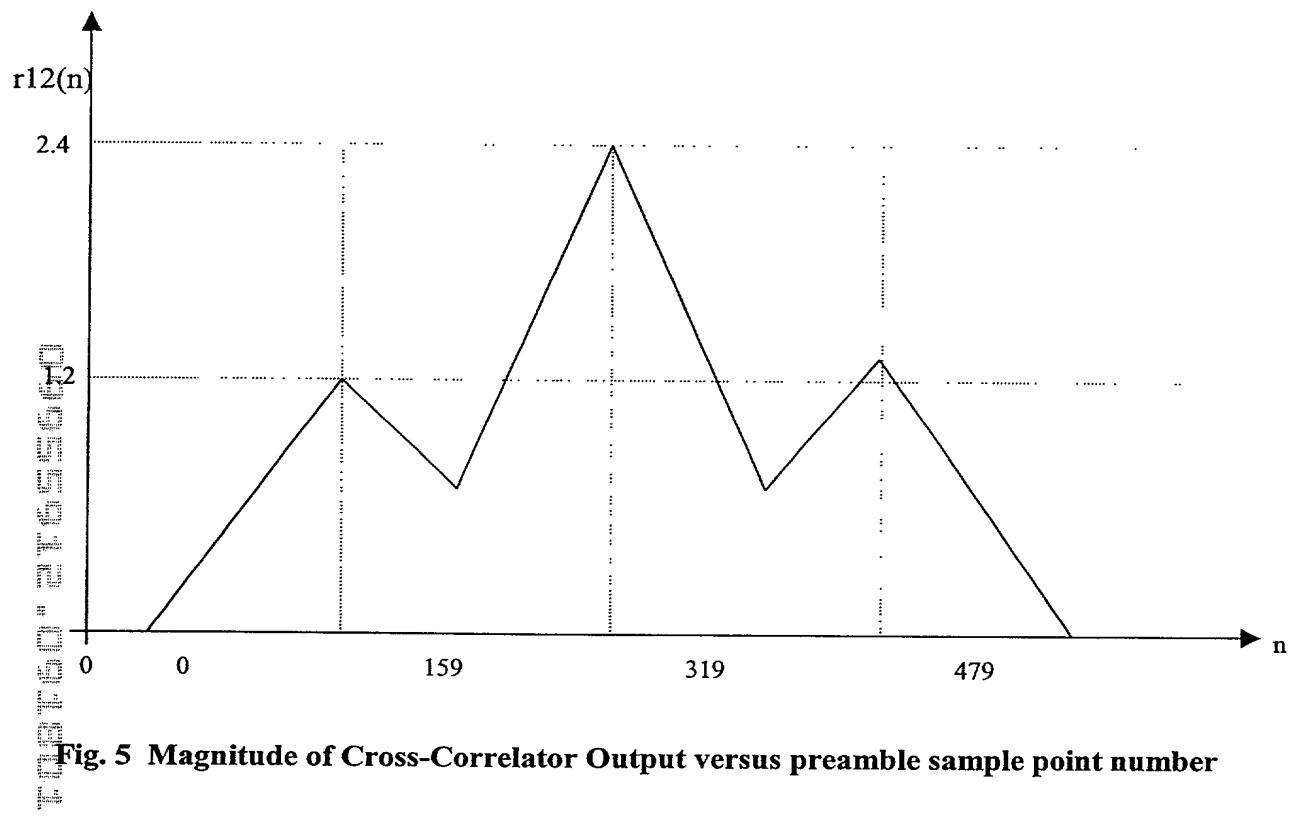


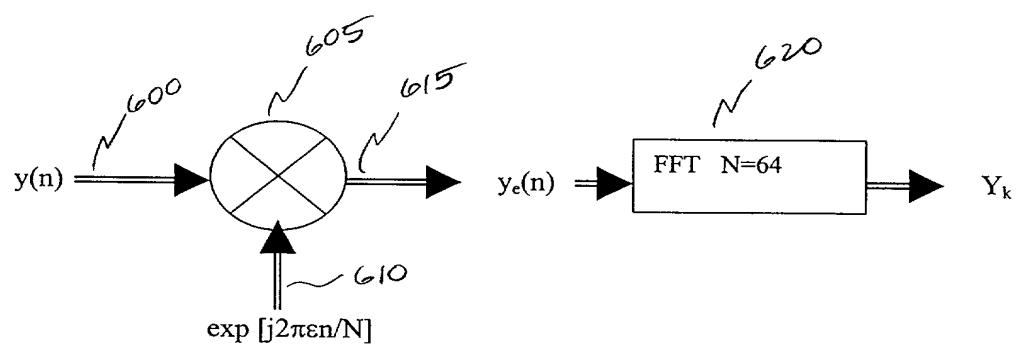
(b)



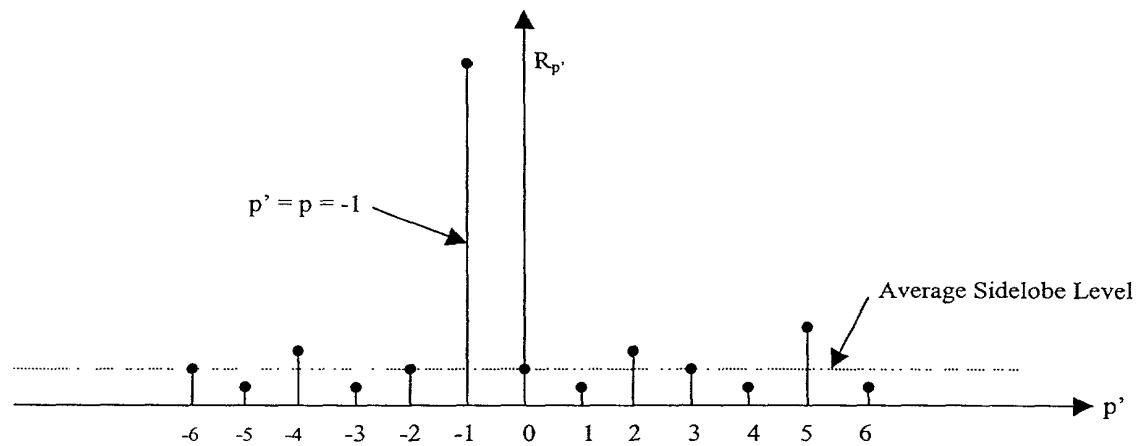
(a)

**Fig. 4 Cross-correlator, preamble inputs and integrator weighting function for initial iteration of the frequency offset and timing synchronization of OFDM WLAN**





**Fig. 6 Fine frequency offset correction and extraction of sub-carrier modulation values**



**Fig. 7 Correlation between interpolated and actual odd frequency channel estimates for integer frequency offset  $p = -1$**

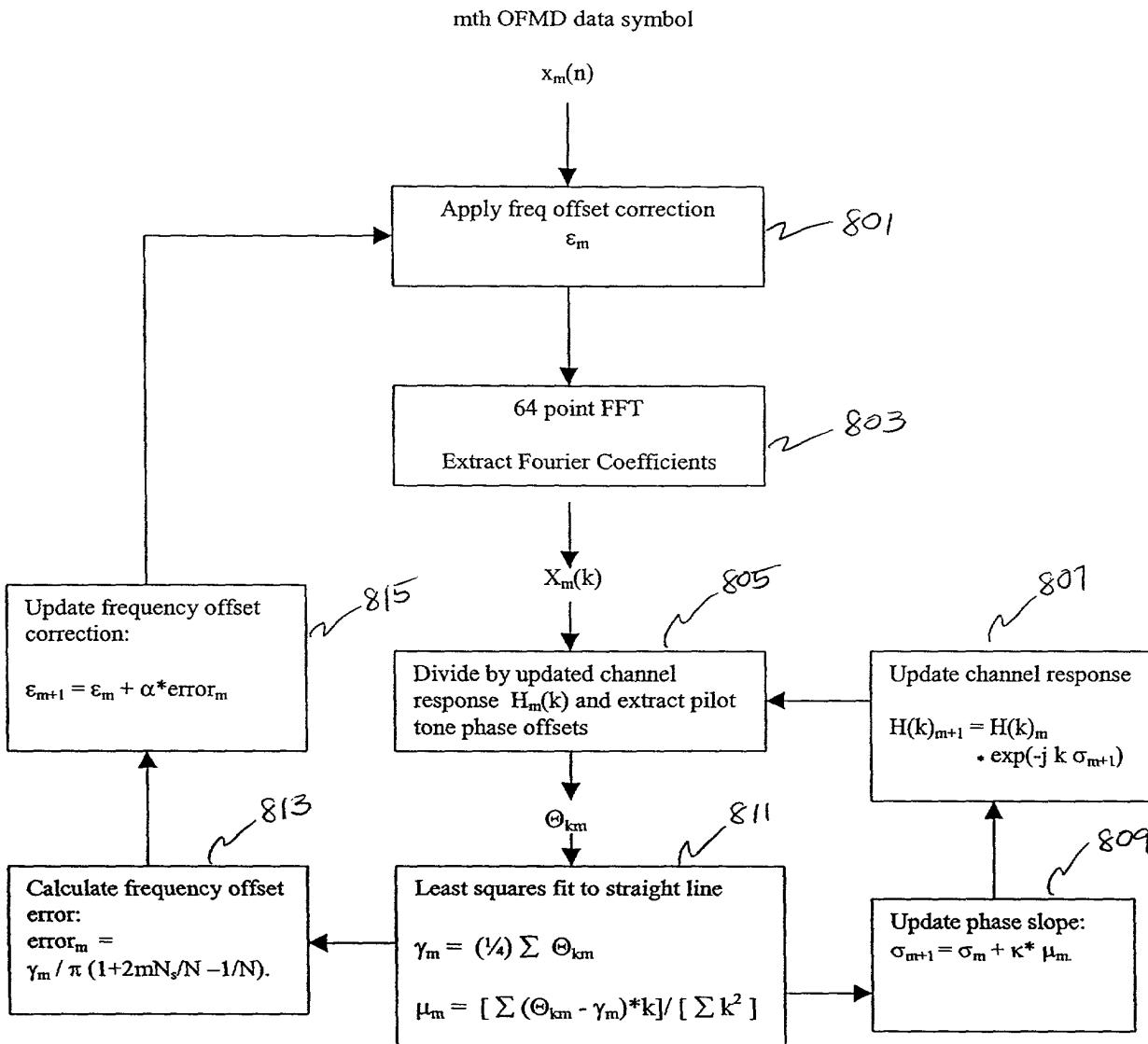


Fig. 8 Pilot tone tracking loop